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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/694,731

10/23/2000

Barrie Gilbert

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3741

20575

7590

11/05/2002

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EXAMINER

TRA, ANH QUAN

ART UNIT

PAPER NUMBER

2816

DATE MAILED: 11/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/694,731

Applicant(s)

GILBERT, BARRIE

Examiner

Quan Tra

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-12,14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-12 and 14 is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7 and 15 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 5-7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofmann (USP 4250457).

As to claim, Hofmann discloses in figures 1 and 2 method comprising: an input terminal (node between 38 and 16) for receiving an input signal, an output terminal (node between 14 and 16) for transmitting an output signal, a grounded base transistor (16) coupled between the input and output terminals, and a current mirror (32, 38) coupled between the input and output terminals, the method comprising biasing the transistor cell (28, 30 or 40, 42) to establish a bias current in the grounded base transistor and the current mirror when the input signal is zero.

Thus, figure 1 shows all limitations of the claim except for the step of limiting the input signal to a range in which the output function of the transistor cell approximates a square-law. Hofmann further provides an equation at column 5, lines 15-18 that teaches when the input signal is relatively small, the cell substantially provides a square-law, and when the input signal is relatively large, the cell provides a linear function (admitted by Applicant). Although Hoffman is not seen to expressly disclose using only a relatively small input signal, it would be quite clear from this teaching that the circuit is usable to provide such a square law. A square law generating circuit is well known in the art to have many uses. Therefore, it would have been

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obvious to one having ordinary skill in the art to limit the input signal of Hofmann to be relatively small for the purpose of providing output function of the cell that approximates a square law as taught by the equation at column 5 to an object circuit.

As to claim 3, figure 2 teaches adjusting the bias current (by temperature), thereby adjusting the input impedance cell.

As to claim 5, figure 1 shows the current mirror is coupled to a power supply terminal (ground); and biasing the transistor cell includes maintaining the base of the grounded base transistor at about  $2V_{BE}$  from the voltage of the power supply terminal.

As to claim 6, figure 2 teaches isolating the current mirror from the output terminal (by transistor 16 and 43).

As to claim 7, figure 2 teaches isolating the current mirror includes coupling a cascode transistor (43) between the output terminal and the current mirror.

As to claim 15, figures 1 and 2 show all limitations of the claim except for the step of limiting the input signal to less than about four times the bias current. However, as teaches by equation at column 5, when the input signal is relatively small, the cell approximates a square law. Therefore, the selection for the input signal to be less than about four times the bias current is seen as an obvious design choice dependent upon particular environment of use to ensure optimum, performance.

***Allowable Subject Matter***

3. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 8-12 and 14 allowed.

Claims 4 would be and claims 8-18 are allowable because the prior art fails to teach the step of varying the bias signal with temperature such that it causes the bias current through the grounded base transistor and the current mirror to be proportional to absolute temperature.

*Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 703-308-6174. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



QT  
October 21, 2002



Terry D. Cunningham  
Primary Examiner